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26-29. Acting president, Professor W. M. Davis, Harvard University; secretary, Professor Herman L. Fairchild, Rochester, N. Y.

The Association of American Geographers.—December 31-January 1. President, Cyrus C. Adams, New York City; secretary, Albert P. Brigham, Colgate University.

The American Society of Zoologists.—December 27, 28, 29. President (Eastern Branch), Professor W. E. Castle, Harvard University; secretary, Professor H. S. Pratt, Haverford College. President (Central Branch), Professor C. C. Nutting, University of Iowa; secretary, Professor T. G. See, University of Michigan.

The Association of Economic Entomologists.—December 28, 29. President, A. H. Kirkland, Malden, Mass.; secretary, A. F. Burgess, Columbus, O.

The Society of American Bacteriologists.—President, Dr. E. F. Smith, U. S. Department of Agriculture; secretary, Professor S. C. Prescott, Massachusetts Institute of Technology.

The American Physiological Society.—December 27, 28, 29. President, Professor W. H. Howell, the Johns Hopkins University; secretary, Professor Lafayette B. Mendel, 18 Trumbull St., New Haven, Conn.

The Association of American Anatomists.—December 27, 28, 29. President, Professor Franklin P. Mall; secretary, Professor G. Carl Huber, 333 East Ann St., Ann Arbor, Mich.

The Botanical Society of America.—December 27, 28, 29. President, Dr. F. S. Earle; secretary, Dr. William Trelease, Missouri Botanical Garden, St. Louis, Mo.

The American Psychological Association.—December 27-28. President, Professor James R. Angell, University of Chicago; secretary, Professor Wm. Harper Davis, Lehigh University.

The American Philosophical Association.—December 27-29. President, Professor William James, Harvard University; secretary, Professor John Grier Hibben, Princeton University.

The American Anthropological Association.—December 27-January 3. President, Professor F. W. Putnam, Harvard University; secretary, Dr. Geo. Grant MacCurdy, Yale University, New Haven, Conn.

The American Folk-lore Society.—December 27-January 3. President, Dr. A. L. Kroeber, University of California; secretary, W. W. Newell, Cambridge, Mass.

New York State Science Teachers Association.—December 26, 27. President, John F. Woodhull, Teachers College, Columbia University.

SCIENTIFIC BOOKS.

Early Chinese Writing. By FRANK H. CHALFANT. Memoirs of the Carnegie Museum, Vol. IV., No. 1.

The director of the Carnegie Museum, Dr. W. J. Holland, deserves the thanks of oriental scholars for his wisdom in inducing Mr. Chalfant to prepare this valuable and interesting memoir on early Chinese writing. Mr. Chalfant has been a missionary in China for nineteen years, and he certainly employed his time to good purpose in collecting data concerning the early forms of Chinese ideographs. His preliminary chapter on early writing derived from ancient inscriptions is an excellent discussion of the meaning of these primitive hieroglyphs, which began in the form of rude pictographs, and afterwards developed into what are commonly known as Chinese ideographs with their phonetics, radicals, etc. The author justly says that it was unfortunate that the word *radical* should have been applied to certain characters which usually, though not always, are associated with their meaning. He calls attention to a marked example of this incongruity in the group of symbols under the radical *corpse* very few of which have any relation to death.¹ Mr. Chalfant says that the radicals should more properly be called 'determinates' or 'classifiers.' The Chinese character used to express the idea means word-class or classifier, the colloquial term being word-mother, which after all conveys the meaning of radical or root. We may add that Dr. Ekins, the distinguished sinologue, in his 'Introduction to the Study of Chinese Characters' says the word radical is misleading. He says the equivalent *pu* means classes, and corresponds to our word kingdom in natural history, and orders in botany and zoology.

The student will find Mr. Chalfant's memoir of the greatest value in studying the evolution, so to speak, of the Chinese ideogram. At the

¹ In no better way can one appreciate the utter absence of scientific method in the Chinese than by a study of their ideographs. It is enough to say that European philologists alone have the ability to make clear the origin and classification of their symbols.

outset a character began as a rough outline of the object represented, and then by successive repetitions the outlines became more and more conventionalized until it reached its present form.² A suggestion of this evolution is given by Mr. Chalfant in twenty-nine plates with the characters arranged in horizontal lines, to the number of 403, each line presenting a number of variants, derived from ancient inscriptions. He gives first the modern character, its radical, the seal method of writing it in the early part of our era, and then several older forms with the suggestion of the original figure. The student will be greatly interested in the lucid discussions of these early forms which Mr. Chalfant illustrates so clearly. Edkins, in the book above mentioned, gives only one ancient form with each character, though in a supplement he gives many inscriptions from ancient Chinese bronzes.

Dr. John Chalmers published, in 1882, a book entitled 'The Structure of Chinese Characters Under 300 Primary Forms, after the Shwuh-wan, 100 A.D., and the Phonetic Shwuh-wan, 1833.' Here also only a single ancient form is associated with the modern character. This book, by the way, is the best one in English for the study of Chinese characters, for under each radical many important derivatives are given so that if one mastered all these he would have made a sound beginning in this fascinating study. Chalfant gives in twenty additional plates 439 of the Shuo Wen³ radicals with their modern equivalents. In this memoir is also presented a fac-simile of the San Edict, filling nine pages with these ancient characters which date back to 1122 B.C., accompanied with a tentative translation. Mr. Chalfant says the text 'may be regarded as rightly belonging to the early date ascribed to it and I see no reason for suspecting it a forgery.' The writing was found inscribed on a bronze vessel, and the translation of it must have been a most difficult task. The inscrip-

²Of course there are thousands of characters which are made up of combinations of others acting as phonetics, or radicals, and these radicals in turn are often greatly abbreviated.

³Edkins gives this word Shwo wen, Chalmers gives it Skwuh-wan.

tion consists of a royal edict concerning the domain of San. "The instrument is executed in the form of an indenture with description of land and names of adjacent land-holders, as in modern Chinese deeds." The minute details show an advanced organization of society and might well belong to the Chow dynasty. We may add that a confirmation of the civilization of the Chinese at that early date may be gathered from W. R. Gingell's remarkable translation of a work known as the Institutes of the Chow Dynasty. Mr. Gingell entitles his translation 'The Ceremonial Usages of the Chinese, B.C. 1121 as Prescribed in the Institutes of the Chow Dynasty, Strung as Pearls.' No one can read this record without being impressed by the elaborate system of government, the complicated ceremonies attending every function, the minute rules observed in every employment and the overpowering forms of etiquette. Indeed, so extraordinary are many of these observances that one is inclined to believe them fabulous, the more so, as with such an advanced civilization as these records imply one wonders how a people could be content with a method of rude picture writing that would hardly do credit to an untutored savage. The mystery becomes the deeper when one considers that these people had on their western border an example of phonetic writing in the Sanskrit, and yet never abandoned their pictographic methods.

The evolution of these rude drawings into definite conventional characters is very instructive; as an example, a rude drawing of bushes which were formerly used for hedges to define the boundaries of a field, finally becomes developed into a character which means 'indicator.'

The interest attaching to Mr. Chalfant's memoir extends quite beyond the matter of Chinese characters and their origin. For those who still have a lingering idea that in the past there was some culture contact between the people of middle America and China it is natural to inquire if any resemblance can be found in the early writings of these two peoples, both of which wrote in picture symbols at the outset. This method of

writing naturally depicted in many cases the same objects. Colonel Garrick Mallery, in his great volume on 'Picture Writing of the American Indian,' a publication of the Bureau of Ethnology, says: "The present collection shows the interesting psychologic fact that primitive, or, at least, very ancient man made the same figures in widely-separated regions, though it is not established that the same figures had a common significance." The rude pictographs of bow, sun, moon, eye and other objects may be found cut in rock throughout the world, but these coincidences do not indicate community of origin any more than do the rude stone arrow head and spear point which are world-wide in their distribution, and which Huxley said may be regarded as 'weapons of necessity.' Interesting coincidences do occur, as, for example, the Maya glyph for division is represented by an oblong oval figure with an inner oval outline having two vertical lines. This has been supposed to represent an obsidian knife. The Chinese ideogram for division represents a knife of another kind with two lines above representing a thing divided. The Egyptian glyph represents a knife like a chopper with a handle used in cutting leather, this also means division.

Mr. Chalfant gives a reproduction of rude characters found on fragments of tortoise shell and on bone arrow heads which were exhumed in the province of Honan in 1899. Many of these characters are rude pictures of objects, such as horse, stag, bird, scorpion, halberd, bow and arrow, wine-jar, hill, field and others. They are considered examples of the earliest writing of the Chinese. The profound difference between the Maya and associated glyphs of middle America, and the Chinese ideographs may be seen at a glance. Ranging over a period of 3,000 years, at least, the Chinese character has been in the form of lines either enclosing spaces as in sun, moon, field, etc., or lines running out from the figure like twigs from a tree. In the Maya and other glyphs of like character the lines of the drawing invariably enclose spaces. In other words the glyphs are made up of conventional drawings of skulls, feet, vessels, etc., in the solid. Here, indeed, one finds a funda-

mental difference in the two methods; the Maya glyph more nearly approaches the Egyptian hieroglyph in which the picture of the object is portrayed, though differing from the rude, conventionalized Maya in being drawn with remarkable fidelity and taste. The Maya glyphs have been derived from larger drawings, but in their condensed and abbreviated forms remind one of those shrunken and diminutive black human heads from South America, which though greatly reduced in size, still preserve the characteristics of the full-sized head. The Maya glyphs were evolved from more complex pictures, yet let one try to imagine a slow evolution of these glyphs at all paralleling the progressive development of Chinese characters and he is forced to admit their entire difference. As an example, take the modern Chinese character for turtle, and one can detect the back, the fore and hind legs, tail, etc.; the Maya glyph for turtle, on the contrary, represents the head alone with a few rudimentary designs below or at the sides, but unmistakable in its character with its recurved beak and peculiar turtle snout.

This brief review does scant justice to Mr. Chalfant's memoir, but we trust that his contributions may inspire others to enter this interesting field of research.

EDWARD S. MORSE.

Forest Mensuration. By HENRY SOLON GRAVES. New York, John Wiley and Sons. 1906. Pp. 458. 8vo.

That forestry is a business—the business of making a revenue from wood crops—is now perhaps grasped by even the most recent novice in the ranks of propagandists for forest preservation. Every business requires the measuring of financial effects; inquiries as to the profitableness of its operations—the statics of expenditure and return—occupy the manager of every business. So in forestry, the recurring inquiry is: Will it pay? Will the effort and expense of making a plantation or of leaving parts of a forest uncut to secure a natural regeneration find eventually its proper reward?

How complicated and difficult the answer to this question must be can be realized when